

Transmission Business Line - Operating Expense

Funding Schedule by Activity

(Accrued Expenditures)

(dollars in thousands)

	FY 2003	FY 2004	FY 2005	\$ Change	% Change
Engineering	18,034	30,377	30,869	+492	+1.6%
Operations	98,577	98,597	100,196	+1,599	+1.6%
Maintenance	124,241	136,127	138,336	+2,209	+1.6%
Total, Transmission Business Line - Operating Expense	240,852	265,101	269,401	+4,300	+1.6%

Description

This activity provides for the transmission system services of engineering, operations and maintenance for Bonneville's electric transmission system of over 15,000 circuit miles (24,135 circuit kilometers) of lines, 284 substations, and associated power system control and communication facilities with an invested cost of more than \$4.8 billion. Primary strategies of this program are: 1) maintain the safety and reliability of the transmission system, consistent with the General Goal 4; 2) increase the focus on customers; 3) optimize the transmission system; and 4) improve Bonneville's competitive position.

Detailed Justification

(dollars in thousands)

	FY 2003	FY 2004	FY 2005
Engineering	18,034	30,377	30,869

Continue efforts to identify best methods for improving system reliability and maintenance practices, and continue cost reduction efforts by identifying opportunities for low cost reinforcement and voltage support of the existing transmission system.

- **R&D:** Conduct in-house transmission system research and development, including (1) studies on reliability, HVDC (high voltage direct current) and HVAC (high voltage alternating current) outage reduction, (2) methods to update existing facilities and reduce maintenance costs including reliability-centered monitoring and recording methods for analysis.
- **Technical Support:** Provide technical support activities, such as transmission system planning and studies to optimize portions of the system. Provide support for non-wires solutions studies and pilot projects.

(dollars in thousands)

FY 2003	FY 2004	FY 2005
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- Capital-to-Expense Adjustments: Conduct annual analysis of Bonneville’s outstanding capital work orders to assess whether they should be expensed.
- Reimbursable Transactions: Enter into written agreements with Federal and non-Federal entities that have work or services to be performed by Bonneville staff at the expense of the benefiting utilities. The projects must be beneficial, under agreed upon criteria, to Bonneville operations and to the Federal or non-Federal entity involved. Additionally, these activities contribute to more efficient or reliable construction of the Federal transmission system or otherwise enhance electric service to the region.
- Leased Facilities: Lease delivery facilities and voltage support facilities, when operationally feasible, to support the transmission system instead of building or purchasing new assets.

Operations **98,577** **98,597** **100,196**

- FY 2003: Continued to operate within parameters of regional transmission authorities. Prepared for increased complexity of outage scheduling, transmission scheduling, and dispatching as well as impact of an expected high attrition rate of skilled operation dispatching workforce by recruiting and training apprentices and skilled replacements. Continued development and implementation of business systems and tools. Participated in planning and preparation for potential establishment of an RTO.
- FY 2004: Continue to operate within parameters of regional transmission authorities. Continue preparation for increased complexity of outage scheduling, transmission scheduling, and dispatching as well as impact of an expected high attrition rate of skilled operation dispatching workforce by recruiting and training apprentices and skilled replacements. Continue development and implementation of business systems and tools. Participate in planning and preparation for potential establishment of an RTO.
- FY 2005: Continue to operate within parameters of regional transmission authorities. Continue preparation for increased complexity of outage scheduling, transmission scheduling, and dispatching as well as impact of an expected high attrition rate of skilled operation dispatching workforce by recruiting and training students, apprentices, and skilled replacements. Continue development and implementation of business systems and tools. Participate in planning and preparation for potential establishment of an RTO.

(dollars in thousands)

FY 2003	FY 2004	FY 2005
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- Substation Operations: Perform operations functions necessary to provide electric service to customers and to protect the Federal investment in electric equipment. Includes equipment adjustments, switching lines and equipment during emergencies or maintenance, isolating damaged equipment, restoring service to customers, and inspecting equipment, reading meters, et cetera.
- Power System Control & Dispatching: Perform central dispatching, control, and monitoring of the electric operation of the Federal transmission system. Also includes load, frequency, and voltage control of Federal generating plants, and operation of the system control and data computers at Dittmer and Munro Control Centers.
- Operations Standards & Engineering: Analyze system loads, voltage levels, outage information, stability levels and other data, and make policy recommendations for system operations and related affairs. Develop of control center requirements for centralized automation of substations and generation, and participate with other utilities in developing utility operating standards and guides.
- Marketing, Sales, & Services: Provide management and direction of transmission rates, and provide business strategy in marketing of transmission and ancillary products and services of the Transmission Business Line.
- Transmission Scheduling: Provide open access to the Federal transmission system consistent with the Open Access Transmission Tariff approved by FERC. Schedule and market transmission capacity to Bonneville customers, California ISO and Pacific Northwest's interconnected utilities. Manage the reservations and scheduling of all transmission services associated with the Open Access Transmission Tariff.

Maintenance **124,241** **136,127** **138,336**

In all aspects of maintenance, Bonneville is shifting to the implementation of Reliability-Centered Maintenance (RCM) practices. This change is focused on improving system reliability and increasing availability in a deregulated market.

Access road maintenance costs are expected to increase dramatically as Bonneville addresses the aging roads system and environmental constraints associated with construction, enhancement, and maintenance of access roads. The Bonneville transmission system encompasses approximately 50,000 miles of access roads. Cost for maintenance activities are budgeted at \$1,000,000 annually.

(dollars in thousands)

FY 2003	FY 2004	FY 2005
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- FY 2003: Continued to refine RCM practices at all of Bonneville's O&M regions. Continued to improve performance to meet System Average Interruption Frequency Index (SAIFI) and System Average Interruption Duration Index (SAIDI) targets. Continued efforts to achieve the SAIFI and SAIDI targets of no control chart violations for circuit importance categories 1-2 (highest importance), and not more than one violation for category 4. Control charts are statistically-based graphs which illustrate variability in performance. Continued to improve availability performance in a deregulated market by utilizing energized work practices and outage coordination. Used recruitment incentives to ensure succession of the current work force and remain competitive as an employer in the utility industry. Assured a safe work environment through safety awareness and improved work practices. Increased outage scheduling planning to increased customer satisfaction. Continued high levels of vegetation management and increased access road work to provide reliable access to facilities and ensure environmental compliance.

- FY 2004: Continue to refine RCM practices at all of Bonneville's O&M regions. Continue to improve performance to meet SAIFI and SAIDI targets as explained above. Continue to improve system availability performance through new maintenance procedures and work practices. Continue to prepare for the impact of an expected high attrition rate among Bonneville's aging workforce by recruiting apprentices and replacements for critical minimum crew size workload positions. Increase outage-scheduling and coordination planning to increase customer satisfaction and system availability. Continue high levels of vegetation management. Continue access road work to provide reliable access to facilities and ensure environmental compliance.

- FY 2005: Continue to improve performance to meet SAIFI and SAIDI targets as explained above. Continue to improve system availability performance through new maintenance procedures and work practices. Continue to prepare for the impact of an expected high attrition rate among Bonneville's aging workforce by recruiting apprentices and replacements for critical minimum crew size workload positions. Increase outage-scheduling planning and coordination to increase customer satisfaction and system availability. Maintain vegetation management levels to insure system reliability. Continue access road work to provide reliable access to facilities and ensure environmental compliance.

- Transmission Line Maintenance: Maintain and repair nearly 24,135 km (15,000 circuit miles) of high voltage transmission lines, of which over 6,436 km (4,000 circuit miles) are 500-kV transmission EHV (extra-high voltage), for which maintenance is two and one-half times more labor-intensive than maintenance of lower transmission voltages, although more efficient in transmission of power. This responsibility includes maintaining transmission rights-of-way to ensure system reliability, safety and environmental compliance.

(dollars in thousands)

FY 2003	FY 2004	FY 2005
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- Substation Maintenance: Maintain and repair the transmission system power equipment located in Bonneville's 285 substations. Work includes inspections, diagnostic testing, predictive and condition based maintenance
- System Protection Maintenance: Maintain relaying metering and remedial action scheme equipment used to control and protect the electrical transmission system and to meter energy transfers for the purpose of revenue billing. Additionally, field-engineering services provide technical advice and assure the correct operation of power system relaying and special control systems used to support interregional energy transmission capabilities.
- Power System Control Maintenance: Test, repair, and provide field engineering support of Bonneville's highly complex equipment, communications and control systems, including seven major microwave systems, fiber optic systems, and other critical communications and control equipment that support the power system.
- Non-Electric Plant Maintenance: Maintain Bonneville's non-electric facilities. Includes site, building, and building utility maintenance; custodial services; station utility; and other maintenance service activities on Bonneville-owned or Bonneville-leased non-electric facilities.
- Maintenance Standards & Engineering: Establish, monitor, and update system maintenance standards, policies, and procedures; and review and update long-range plans for maintenance of the electric power transmission system.

Total, Transmission Business Line - Operating Expense	240,852	265,101	269,401
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Explanation of Funding Changes

	FY 2005 vs. FY 2004 (\$000)
Engineering	
<ul style="list-style-type: none"> ■ Minor increase reflects changes in program activities such as research and development. 	+492
Operations	
<ul style="list-style-type: none"> ■ Increase primarily due to deferred program costs offset by near-term cost efficiencies. 	+1,599
Maintenance	
<ul style="list-style-type: none"> ■ Increase primarily due to deferred program costs offset by near-term cost efficiencies 	+2,209
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Total Funding Change, Transmission Business Line – Operating Expense.	<u>+4,300</u>